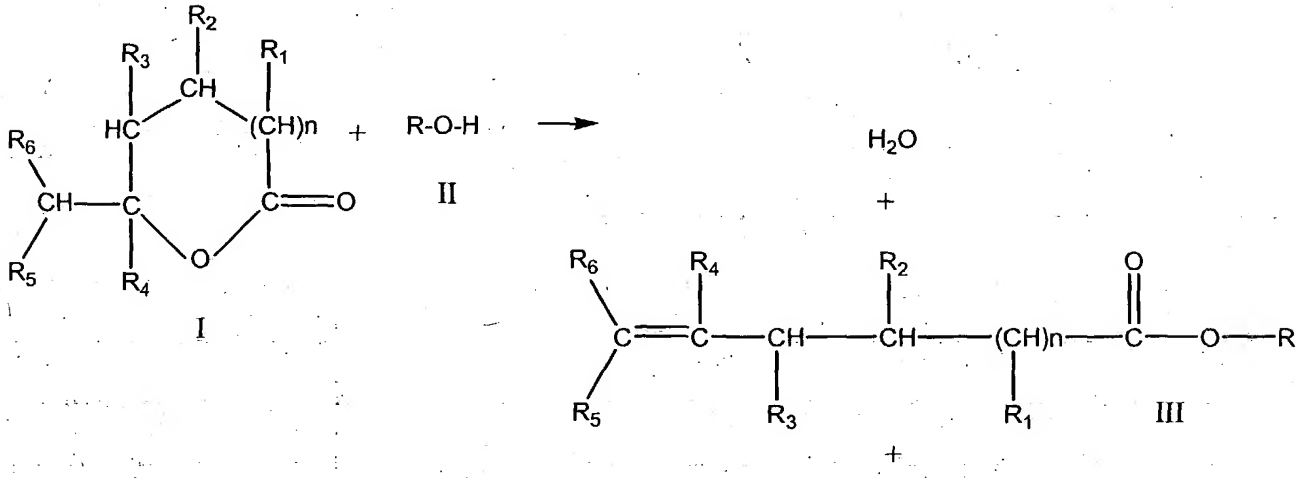
CLAIMS

What is claimed is:

1. A process for preparing alkyl alkenoate ester represented by Formula III, comprising contacting a lactone of Formula I with an alkanol of Formula II in the presence of a heterogeneous base catalyst, the base catalyst being optionally supported on a catalyst support, to form the corresponding alkyl alkenoate ester,



wherein:

n = 0-2;

R_1, R_2, R_3, and R_4 independently are hydrogen, hydrocarbyl or substituted hydrocarbyl, C_1-C_{18} unsubstituted or substituted alkyl, unsubstituted or substituted alkenyl, unsubstituted or substituted cycloalkyl, unsubstituted or substituted cycloalkyl containing at least one heteroatom, unsubstituted or substituted aryl, and unsubstituted or substituted heteroaryl;

R_5 and R_6 taken independently are hydrogen or alkyl with 1 to 5 carbon atoms, wherein the total number of carbons of R_5 and R_6 do not exceed 5; and

R is alkyl with 1 to 6 carbon atoms.

2. The process as recited in Claim 1 wherein n=0 and R1, R2, R3, R4, R5, and R6, taken independently, are hydrogen.

3. The process as recited in Claim 2 wherein R is a methyl group.

4. The process as recited in Claim 1 wherein the lactone is gamma-valerolactone and the alkanol is methanol.

5. The process as recited in Claim 1 or Claim 4 wherein the ratio of weight content of the lactone to the alkanol is in the range of from 1/100 to 100/1.

6. The process as recited in Claim 1 or Claim 4 wherein the ratio of weight content of the lactone to the alkanol is in range of from 40/60 to 60/40.

7. The process as recited in Claim 1 wherein the base catalyst is selected from the group consisting of metal silicates, metal carbonates, metal oxides, metal hydroxides, metal phosphates, metal aluminates or combinations thereof.

8. A process as recited in Claim 1 wherein the base catalyst is selected from the group consisting of Group 1, Group 2 or rare earth silicates; Group 1, Group 2 or rare earth oxides; Group 1, Group 2 or rare earth carbonates; and combinations thereof.

9. The process as recited in Claim 1 wherein the process is performed at a temperature in the range of from 250°C to 500°C.

10. The process as recited in Claim 1 wherein the process is performed at a temperature in the range of from 325°C to 400°C.

11. The process as recited in Claim 6 wherein said metal is selected from the group consisting of barium, cesium, rubidium and magnesium.

12. The process as recited in Claim 7 wherein the base catalyst content is of from about 1% to about 30% by weight of the reactants.

13 The process as recited in Claim 7 wherein the base catalyst content is of from about 10% to about 25% by weight of the reactants.

14. The process as recited in Claim 7 wherein the base catalyst content is of from about 12% to about 22% by weight of the reactants.

15. The process as recited in Claim 1 wherein the process is performed in a vapor phase.